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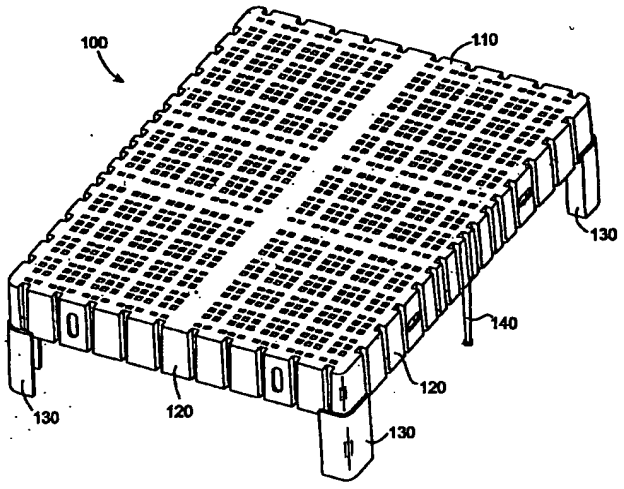
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(54) Title: PLASTIC MATTRESS FOUNDATION HAVING A SCULPTED EXTERIOR SURFACE



(57) Abstract: A mattress foundation is constructed substantially of plastic material. The foundation is defined by a semi-rigid cavity including a generally flat top surface, at least one downward depending sidewall, and at least a portion of an outer surface of the sidewall having a pattern formed thereon. Optional ground support members retain the foundation in a substantially horizontal orientation. An outer surface of one or more of the ground support members has a pattern formed thereon. An outer surface of an optional headboard may have a pattern formed thereon. A portion of an upper side of the top surface may have a pattern formed thereon. The pattern formed on the sidewall, the top surface, the ground support, or the headboard may give a quilted appearance to the foundation. The pattern may be three-dimensional or substantially flat. The pattern may be integral with the foundation or attached thereto.

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PLASTIC MATTRESS FOUNDATION HAVING A SCULPTED EXTERIOR SURFACE

BACKGROUND OF THE INVENTION

Today, foundations for mattresses are typically constructed of a combination of materials, including wood, metal, and fabric, and may include support subassemblies such as edge-reinforcing springs. The size and number of materials, typically selected for low cost, present numerous difficulties for consumers, including handling and disposal. In fact, many U.S. states have instituted disposal fees for mattress foundations, which can be as high as $100.00.

The use of plastic has emerged for certain subcomponents of mattress foundations. For example, plastic springs for a mattress foundation are disclosed in U.S. Pat. No. 5,720,471, and plastic interior corner guards are shown in U.S. Pat. No. 6,125,488.

SUMMARY OF THE INVENTION

Use of plastic in mattress foundations has been limited. Hence, there remains a need for mattress foundations constructed exclusively or substantially of plastic. There is also a need for plastic mattress foundations having that appear to the consumer as aesthetically tasteful visually.

The systems and methods described herein disclose a mattress foundation made entirely or substantially of plastic material. The foundation may be designed to fit into a standard bed frame. Ground support members, such as legs, may be added to the foundation to construct a mattress foundation and frame combination assembly. In an embodiment, a portion of an exterior surface of the plastic foundation assembly—for example, exterior sidewalls and/or an upper surface on which a mattress is placed—may be designed, manufactured, and/or modified to resemble a foundation having an upholstered covering, for example, and without limitation, a quilted upholstered covering.

The design principle is based, at least in part, on a combination of needs for a lighter-weight, more easily transportable, recyclable, aesthetically tasteful, and structurally robust mattress foundation or foundation-frame combination assembly. In

one embodiment, the foundation or foundation-frame combination assembly is designed to support a mattress of rectangular shape, such as, without limitation, a twin, full, queen, Olympic queen, or king mattress. In this embodiment, the foundation may be rectangular in shape and have four sidewalls.

The mattress foundation, or foundation-frame combination assembly, can withstand the combined load weight—that can be several hundred pounds—of a mattress and one or more occupants resting thereon. This is accomplished, at least in part, by the inclusion of a combination of supporting braces, reinforcing fins, and reinforcing trusses and/or other non-planar structures, disposed at structurally appropriate locations in, or along predetermined axes along, the foundation.

In an exemplary embodiment, the braces are designed to connect with, and structurally reinforce, the foundation in a snap-on, snap-off fashion; this can be accomplished, for example, by a tongue-and-groove, dovetail, or other functionally equivalent mating arrangements known in the art. To further increase the structural integrity of the foundation, the tongue and groove shapes are designed to prevent outward deflections of the foundation under load weights.

The mattress foundation comprises a cavity—made substantially or entirely of plastic material—defined by a generally planar top surface and one or more sidewalls depending downward from it. The foundation may be inserted into a standard bed frame, or, in an alternative embodiment, sustained above ground—in an approximately horizontal position—by ground support members connected to the foundation. The ground support members, which could be legs, may be removably coupled with the foundation or integrally formed with it. In one embodiment, foundation and the legs constitute a mattress foundation-frame combination assembly.

In one embodiment, the legs are attached to the foundation through a mating arrangement; the mating may involve a tongue-and-groove, dovetail, or other functionally equivalent configuration known in the art. The legs may have cross-sectional shapes designed based on, among other things, aesthetic and/or structural-mechanical considerations.

The use of a combination of braces, fins, trusses, and other, non-planar components for structural reinforcement is further justified when ground support members, or legs, retain the foundation in a substantially horizontal position above

ground. In this embodiment, with the foundation resting on a set of legs—and not resting entirely on the ground along the lower edges of its one or more sidewalls—it is desirable for the foundation's structural design to ensure that deflections and twists on the foundation, due to load weights for example, are sufficiently suppressed and/or tolerated.

The overall shape of the mattress foundation is at least partly chosen to be compatible with the type of mattress that it is intended to support. For example, if the mattress is rectangular in shape, then the foundation may be reasonably designed to have a compatibly-sized rectangular top surface. In other embodiments, other shapes may be used; for example, a heart-shaped foundation may be designed for a similarly shaped mattress for use in, say, "honey-moon suites" in hotels. In other exemplary embodiments, circular, elliptical, or polygonal foundation shapes may be designed, consistent with the particular mattress type to be used, and in consonance with load weight considerations.

To lighten the weight of the plastic foundation, to increase its pliability for sleeping comfort, to improve its structural integrity under load weights, or for any combination of these, and other, reasons, the top surface and/or side walls of the foundation may optionally be ribbed, resulting in air spaces formed therein. Some portions of the top surface and/or the sidewalls may be designed to have one or more continuous, uninterrupted regions of plastic material, tying together opposing sidewall portions; this may be beneficial in terms of structural integrity, aesthetics, and a combination of these and/or other reasons.

In one embodiment, the sidewalls may be corrugated and/or have non-planar components, including, for example, trusses, that improve the structural integrity of the assembly. In one aspect, the non-planarity of a sidewall includes an architectural pattern on an outer surface of the sidewall, giving the sidewall an upholstered appearance and/or tactile feel, or any other desired appearance and/or feel, such as wooden appearance and/or feel, metallic appearance and/or feel, or a combination of these and other visual and tactile profiles. Alternatively, the architectural pattern causes the outer surface to have a tactile feel substantially comparable to a tactile feel of a mattress foundation having an upholstered outer surface, including, in some embodiments, a quilted upholstered surface. For example, and without limitation, the

architectural pattern may give the sidewall a quilted appearance. According to various practices, the non-planar architectural pattern on the outer surface of the sidewall may be formed using molding, etching, embossing, engraving, carving, stamping, silhouetting, sculpting, or a combination of these and other three-dimensional pattern-forming methods. The architectural pattern may be textured to resemble a quilted pattern. According to one embodiment, the architectural pattern includes a contoured figuration. In one practice, the figuration includes topographic features having surface elevations and depressions.

Other pattern types are possible, including, for example, substantially flat patterns on the outer surface of the sidewall. For example, and without limitation, the architectural pattern may be applied to the sidewall by painting the pattern on the outer surface. Alternatively, paint may be used in conjunction with one or more of the embodiments described above that have a non-planar architectural pattern. For example, the paint may be applied to the non-planar architectural pattern to give the mattress foundation the appearance of wood; in one practice, the wooden appearance gives the mattress foundation an antique look. Other motifs are possible, such as modern, steel, etc., by appropriately designing the contours, thickness, colors, and shapes of the pattern, and by an appropriate choice of the material used to create the pattern; the material, in a typical embodiment, is substantially plastic in content, but it may include other materials such as wood or metal, or a combination thereof. In general, a material used in the plastic mattress foundation may be used for the architectural pattern, and methods used for forming the mattress foundation may be used to form the architectural pattern; for example, if the mattress foundation is made by injection molding, then the architectural pattern, in one embodiment, can be formed similarly using injection molding.

The architectural pattern may be integral with the sidewall or may be attached to it. In one embodiment, the pattern may be applied to the outer surface of the sidewall adhesively. For example, and without limitation, the pattern may be formed on one surface of a strip, the strip's opposite surface having an adhesive. The strip may then be affixed to the outer surface of the sidewall using the adhesive. The adhesive may include a strip of double-sided adhesive, it may include glue, or it may include a combination of adhesive types commonly used in the art and/or available

commercially.

Alternatively, the patterned strip may be applied to the outer surface of the sidewall using Velcro, or using a combination of fasteners known in the art. In one embodiment, the strip may be formed to include protrusions and/or notches that mate with compatible protrusions and/or notches on the outer surface of the sidewall. The strip may be made of the same material that the foundation is made of, or it may be made of other materials, such as wood, metal, or a combination of these. In alternative embodiments, a structural member containing the architectural pattern on a surface thereof may be attached to the foundation in a snap-on, snap-off fashion; this can be accomplished, for example, by a tongue-and-groove, dovetail, or other functionally equivalent mating arrangements known in the art.

An outer surface of one or more ground support members, too, may have a pattern formed thereon. A subset of the features, constructions, and uses of the architectural pattern used for the sidewall also are applicable to the ground support members.

The mattress foundation or foundation-frame combination assembly may optionally include a headboard that is attached or integrally formed with the foundation or the combination assembly. The lower part of the headboard may, in some embodiments, serve as an auxiliary ground support to retain the foundation above ground. In various embodiments, an outer surface of the headboard may include an architectural pattern giving the headboard an upholstered appearance, or any other desired appearance, such as wooden appearance, metallic appearance, or a combination of these or others mentioned above. In these embodiments, the architectural pattern of the headboard can be constructed, made to appear, or shaped in a manner analogous to any of the embodiments of the architectural pattern of the sidewall described above.

To improve the mobility of the foundation, casters may be installed on, or integrally formed with, the foundation, for ease of rolling and transport. The casters may be disposed at select locations along the edges of, or on, one or more of the sidewalls, depending on the desired orientation of the foundation during transport. If a foundation is to be transported vertically, for example, then the casters may be connected with a sidewall, disposed perpendicularly to the surface of the sidewall.

In one embodiment, the foundation cavity may be designed to have mating shapes essentially along the periphery above the top surface and on the lower edges of the sidewalls, so that multiple foundations may be securely stacked—for example, one on top of another or, alternatively, vertically side by side—for easy shipment or retail store display; in this embodiment, the bottom of one foundation securely mates with the top of another foundation.

A person of ordinary skill in the art would know, or be able to readily ascertain, that there are various plastic compositions that may be used for the construction of the mattress foundation or of the combination foundation-frame assembly. For example, the foundation or the combination assembly may be made entirely of plastic. Alternatively, the foundation or the combination assembly may be made, at least in part, of plastic and non-plastic material: examples are plastic on metal; plastic reinforced with metal, carbon, or other fibers; plastic reinforced with resin; and any combination of these and other compositions known to those of ordinary skill in the art.

Furthermore, the plastic used in the construction of the mattress foundation, the foundation-frame assembly, and/or the architectural pattern formed on an outer surface of the assembly may be molded plastic, made according to one or more of the plurality of methods known in the art, such as compression molding, injection molding, gas-assisted injection molding, vacuum molding, low-pressure molding, blow molding, and other molding methods. Those of ordinary skill in the art would know that various types of plastic may be used in the mattress foundation or in the foundation-frame combination assembly; examples include polyurethane, polyethylene, polystyrene, polyvinyl chloride, and polypropylene.

In a preferred embodiment, the plastic material is recyclable, so that if the owner of the mattress foundation or foundation-frame combination assembly wishes to dispose of the same, he or she would be able to do so without having to incur the fees that many municipalities charge for disposal of such items of furniture.

BRIEF DESCRIPTION OF THE FIGURES

The foregoing and other objects and advantages of the invention will be appreciated more fully from the following further description thereof, with reference to the accompanying drawings, wherein;

Fig. 1 is a top perspective view of a plastic mattress foundation and frame combination assembly;

Fig. 2 is a bottom perspective view of a plastic mattress foundation;

Fig. 3 is a bottom perspective view of a plastic mattress foundation including casters;

Fig. 4 depicts a plastic mattress foundation and frame combination, including a headboard;

Figs. 5A–5D depict various embodiments of an architecturally patterned outer surface of the mattress foundation;

Fig. 6 depicts an embodiment wherein the plastic mattress foundation includes an architecturally patterned outer surface affixed to a core of the foundation using a combination of grooves and protrusions to mate the core and the pattern;

Fig. 7A depicts an embodiment wherein the headboard has an architecturally patterned outer surface;

Fig. 7B depicts an embodiment wherein the top surface of the plastic mattress foundation has an architecturally patterned upper surface;

Fig. 7C depicts an embodiment wherein a portion of the top surface and at least one of the sides has an architecturally patterned outer surface;

Fig. 7D depicts an embodiment wherein an outer surface of one or more ground support members has an architectural pattern formed thereon;

Fig. 8 depicts a view of an architectural pattern used on an outer surface of the mattress foundation assembly;

Fig. 9 depicts a magnified view of the architectural pattern of Fig. 8, used on an outer surface of the mattress foundation assembly;

Fig. 10 depicts a view of an architectural pattern used on an outer surface of the mattress foundation assembly having a drawer;

Fig. 11 depicts a plan view showing in sharp relief contours of the architectural pattern;

Fig. 12 depicts a view of two embodiments of an architectural pattern used on an outer surface of the mattress foundation assembly, the two embodiments having distinct colors; and

Fig. 13 depicts a plan view showing in sharp relief contours of the

architectural pattern.

DETAILED DESCRIPTION OF THE ILLUSTRATED EMBODIMENTS

To provide an overall understanding of the invention, certain illustrative embodiments will now be described. These embodiments include, but are not limited to, mattress foundations formed entirely or substantially of molded plastic. However, it will be understood by one of ordinary skill in the art that the systems described herein can be adapted to other plastic foundations, such as foundations formed of extruded and assembled plastic pieces, or composite foundations of plastic over non-plastic structural members (e.g., metal) or reinforced plastic (e.g., with glass or carbon fibers, or fillers). All such modifications as would be clear to one of ordinary skill in the art are intended to fall within the scope of the systems described herein.

Fig. 1 is a top perspective view of a plastic mattress foundation and frame combination assembly. The foundation 100 may include a top surface 110 and four sidewalls 120. Attached to, or integrally formed with, the foundation 100 may be four corner supports 130 and two supplemental supports 140. The foundation 100 may be used to support a mattress of any type, including a foam mattress, as well as mattresses of different constructions including pocketed coil construction, wire spring construction, water bed or any other suitable mattress construction. Moreover, it will be understood that although the depicted embodiment comprises a queen size mattress, mattresses of any size may be constructed according to the methods described herein.

The foundation 100 may be formed of any suitable plastic material, including, for example, polyurethane, polyethylene, polystyrene, polyvinyl chloride, polypropylene, or any other moldable plastic that can be formed with sufficient strength to support the weight born by a mattress foundation (including a mattress and one or more human occupants). The foundation may be formed using compression molding techniques such as injection molding, gas-assisted injection molding, vacuum molding, low-pressure molding, or blow molding, in which plastic in some elastic or fluid form is formed into the foundation 100 and permitted to set into a mechanically rigid structure.

The top surface 110 of the foundation 100 may be ribbed as shown in

Fig. 1, so that air spaces are formed therein. This reduces weight in areas where less mechanical support is required, or where some pliability is desirable for sleeping comfort on a mattress atop the foundation 100. Certain regions, such as a central portion of the top surface 110, may, by contrast, be formed of an uninterrupted strip of plastic that ties together opposing sidewalls 120.

The sidewalls 120 may be corrugated, or contain other non-planar shapes to increase structural rigidity of the sidewalls 120, and the overall foundation 100. Any other truss structure or other structurally enhancing configuration known in the mechanical arts may be used to improve the overall strength and rigidity of the foundation 100.

The corner supports 130 and supplemental supports 140, may be removably attached to the foundation 100 through any conventional mating arrangement, such as a tongue and groove, dovetail, or other functionally equivalent configurations known in the art. According to one embodiment, the corner supports 130 and the supplemental supports 140 may be integrally formed with the foundation 100. While two supplemental supports 140 are shown, it will be appreciated that any number of supports 140 may be used as required by the anticipated load on the mattress foundation 100 and the corresponding inherent strength of the top surface 110 and sidewalls 120. More particularly, the foundation 100 depicted in Fig. 1 is a foundation for a queen size mattress. It is expected that a king size mattress foundation may require additional supplemental supports 140, while a twin size mattress foundation may require no supplemental supports 140 whatsoever. Each supplemental support 140 and corner support 130 may have a cross-sectional shape to increase strength; examples are + shape, X shape, U shape, D shape, H shape, Z shape, C shape, V shape, M shape, B shape, T shape, circular shape, elliptical shape, L shape, heart shape, and a combination of these or analogous patterns.

The overall structure of the foundation 100 may include mating shapes along an outside edge of the top surface 100 and along the bottom of the sidewalls 120, such that a plurality of foundations 100 may be conveniently stacked for shipping, storage, handling, or retail display. In addition to increasing the stability of a stack of foundations in, for example, a retail display, this technique may reduce the cost of shipping and eliminate the need for traditional wooden shipping pallets or other

intermediate supports when transporting or storing the foundations 100.

Fig. 2 is a bottom perspective view of a plastic mattress foundation. As shown in Fig. 2, the foundation 200 may include a bottom surface 210 with a cross-sectional profile 215 and one or more sidewalls 220. One or more braces 230 may be connected to, or integrally formed with the foundation 200 such that opposing sidewalls 220 are interconnected to structurally support the foundation 200. The foundation 200 may generally be similar to the foundation 100 described above with reference to Fig. 1.

The sidewalls 220 may include one or more grooves 240 adapted to receive a corresponding tongue on each of the braces 230. The grooves 240 may be designed to allow for a snap-on, snap-off attachment of the braces to the foundation, thereby easing the assembly or disassembly of the foundation. Furthermore, the grooves 240 may be shaped to prevent undesirable outward deflection of the sidewalls under load weights. One example of such a shape is a trapezoid. Those of ordinary skill in the art would know of other shapes that can be used to accomplish the same purpose. Each brace 230 may include non-planar reinforcing structures and air spaces as described above generally with reference to the foundation 100 of Fig. 1.

The bottom surface 210 of the foundation 200 may include reinforcing structures to structurally reinforce the foundation 200, which must support a mattress and one or more occupants of the mattress. One structure for achieving this is perpendicular fins, as shown in the cross-sectional profile 215. Other reinforcing structures including trusses, additional braces, and so forth, may readily be used, provided their overall form is amenable to the selected manufacturing technique (most typically some form of compression molding).

The use of the support braces 230, fins (shown in the cross-sectional profile 215), trusses, and other non-planar reinforcing support structures is justified for more than one reason. Unlike a mattress foundation that sits directly on a flat surface, and the lower edges of whose sidewalls serve as mechanical supports that resist twisting, bending, and undesirable deflection, a mattress foundation that rests on a set of ground support members (such as corner supports 130 and/or supplementary supports 140) disposed at discrete points along the lower edge of the sidewalls 120, is subject to undesirable mechanical forces of twisting, bending, and deflection that require

additional restraining structural reinforcement to suppress.

Additionally, any looseness in the structure, and resulting motion from load weights (in particular, shifting load weights) may cause squeaking sounds that are undesirable to the occupant or occupants of the mattress. To this end, the methods and systems described herein use, in a preferred embodiment, a combination of structurally reinforcing braces 230, fins (as shown in the cross-sectional profile 215), trusses, and other non-planar components to suppress undesirable deflections, bending, and twisting of the foundation under load weights.

Fig. 3 is a bottom perspective view of a plastic mattress foundation. The foundation 300 depicted in Fig. 3 may be similar to any of the foundations described above in reference to Figs. 1 and 2, as modified to include casters for easy rolling of the foundation 300, either with or without a mattress in place. The foundation 300 may include one or more slots or openings to receive casters 310, such as at the corners of the sidewalls 320. As depicted, one or more casters 310 may also attached to braces adjoining opposing sidewalls 320 in order to support regions of the foundation 300 inside the sidewalls 320, while continuing to permit rolling of the foundation 300 on the casters 310.

Fig. 4 depicts a plastic mattress foundation-frame combination assembly including a headboard. The foundation 400 depicted in Fig. 4 may be similar to any of the foundations described above in reference to Figs. 1–3, as modified to include a headboard. A headboard 410 may be removably attached to, or integrally formed with, the foundation 400, and may be formed of any of the plastic materials or composites described above.

Figs. 5A–5D depict outer surfaces of exemplary sidewalls 500A–500D, illustrating in sharp relief the contour lines 510A–510D of architectural patterns formed thereon. The contours 510A–510D may indicate topographical peaks or troughs in various embodiments.

Fig. 6 depicts an embodiment of the plastic mattress foundation core 600, wherein the architectural pattern 620 is applied to the foundation core 600 using a strip 610 having protrusions 630 that mate with compatible grooves 640 of the core 600. Although the strip 610 is shown having a shape compatible with the sidewall 650 of the foundation core 600, the strip may have a shape compatible with a

headboard (not shown), an upper side of the top surface 660, or an outer surface of a ground support member (not shown). Furthermore, even though in Fig. 6 the strip 610 is shown to have protrusions and the sidewall 650 to have grooves 640, any combination of these may be formed on either the sidewall or the strip. For example, the strip 610 may have both grooves and protrusions, and the sidewall 650 matching protrusions and grooves. In alternative embodiments, the strip 610 may be attached to the core 600 using other attachment means. For example, the strip 610 may be attached to the core 600 adhesively. Other embodiments may employ fasteners or other commonly-known attachment means to attach strip 610 to the core 600; in one embodiment, braces may be used for the attachment. Similar attachment means can be used to attach an architectural pattern to the headboard (not shown), the ground support (not shown), or the upper side of the top surface 660.

Fig. 7A depicts a mattress foundation assembly 700A comprising a headboard 710A and a foundation core (including ground support) 720A. The figure depicts in sharp relief the contours 730A of the architectural pattern associated with the headboard 710A. As mentioned previously, the architectural pattern may be formed on the headboard or attached thereto, using methods described above.

Fig. 7B depicts a mattress foundation assembly 700B having a top surface 750B. On an upper side of the top surface 750B, the embodiment shown depicts in sharp relief the contours 730B associated with the architectural pattern of the top the surface. As mentioned elsewhere, the contours 730B may represent troughs or peaks of a quilt pattern.

Fig. 7C depicts a mattress foundation 700C having a top surface 750C and a sidewall 740C. The figure depicts an embodiment wherein an architectural pattern having contours shown by 730C and 760C cover the sidewall 740C and a substantially peripheral portion of the top surface 750C. In an illustrative embodiment, if a mattress (not shown) resting on the top surface 750C were to be displaced slightly, then the peripheral portion covered by the pattern 760C would still maintain a quilted appearance for the foundation assembly.

Fig. 7D depicts a mattress foundation 700D, wherein an architectural pattern represented by the contours 730D is formed on one or more of the ground support members 710D. Again, the pattern 730D may be attached to, or formed integrally

with, the ground support members 710D of the foundation 700D.

Fig. 8 depicts an embodiment of an exemplary architectural pattern 802 formed on an outer surface of the mattress foundation 800 having a mattress 801 resting thereon. Although the pattern 802 is shown to be substantially sinusoidal, an alternative pattern may be formed on the outer surface, for example, and without limitation, any of the patterns depicted in Figs. 5A–5D, the pattern 730A of Fig. 7A, 730B of Fig. 7B, etc.

Fig. 9 depicts a magnified portion of the embodiment of Fig. 8. Optional logo 905 is shown on the mattress foundation 900 having the architectural pattern 902 formed thereon.

Fig. 10 depicts an embodiment of exemplary architectural pattern 1002 formed on an outer surface of the mattress foundation 1000 having a drawer 1004.

Fig. 11 depicts in sharp relief contours 1130 of an exemplary architectural pattern 1100 formed on an outer surface of the mattress foundation.

Fig. 12 depicts a side-by-side view of two embodiments 1200 and 1210 of architectural pattern 1202 formed on an outer surface of the mattress foundation. Although the embodiments 1200 and 1210 depict two substantially uniformly-colored mattress foundations, other embodiments of the foundation having various portions colored differently is possible.

Fig. 13 depicts in sharp relief contours 1330 of an exemplary architectural pattern 1300 formed on an outer surface of the mattress foundation.

In one aspect, there is described herein a recyclable mattress foundation. A foundation formed wholly or substantially from plastic may be readily recycled in a manner that permits recovery and reuse of plastic components. This may further present cost savings to a consumer who may be spared any applicable disposal fee for conventional mattress foundations.

In another aspect, the invention is directed at a mattress foundation formed of a single piece of a single material. The one-piece mattress foundation has ground supports and may optionally include a headboard and/or casters.

In another aspect, the invention is directed at a technique for manufacturing a mattress foundation that includes the steps of providing a foundation mold, inserting an elastic plastic into the mold so that the plastic takes the form of the mold, curing

the plastic (or cooling the plastic, or taking other suitable steps to cause the plastic to harden), and removing the plastic foundation from the mold. In another aspect, the invention is directed at a method of forming an architectural pattern on an outer surface of the foundation assembly.

Those of ordinary skill in the art will know, or be able to ascertain using no more than routine experimentation, many equivalents to the embodiments and practices described herein. Accordingly, it will be understood that the invention is not to be limited to the embodiments disclosed herein, but is to be interpreted as broadly as allowed under the law, according to the following claims.

CLAIMS:

1. A mattress foundation constructed substantially of plastic material, comprising:

a. a generally planar and essentially rigid top surface having an upper side and a lower side; and

b. at least one essentially rigid sidewall extending substantially along the perimeter of the lower side of the top surface, depending downward from the top surface, defining a cavity, wherein an outer surface of the sidewall includes three dimensional architectural features formed therein, wherein the architectural features mimic a pattern and tactile feel substantially comparable to a quilted surface of a companion mattress.

2. The mattress foundation of claim 1, wherein the three dimensional architectural features are integrally formed with the sidewall.

3. The mattress foundation of claim 1, including a headboard tangentially extending vertically along one end of the foundation.

4. The mattress foundation of claim 3, wherein the headboard is made of substantially plastic material.

5. The mattress foundation of claim 4, wherein an outer surface of the headboard includes a pattern.

6. The mattress foundation of claim 1, wherein a pattern is formed on at least a portion of the upper side of the top surface.

7. The mattress foundation of claim 1, including at least one ground support member.

8. The mattress foundation of claim 7, wherein the ground support is made of substantially plastic material.

9. The mattress foundation of claim 8, wherein an outer surface of the ground support includes a pattern.

10. The mattress foundation of claim 9, wherein the pattern of the outer surface of the ground support is integrally formed with the ground support.

11. A mattress assembly constructed substantially of plastic material, comprising:

a. a mattress foundation comprising:

i. a generally planar and essentially rigid top surface having an upper side and a lower side; and

ii. at least one essentially rigid sidewall, having a lower edge, the sidewall extending substantially along the perimeter of the lower side of the top surface, depending downward from the top surface, defining a cavity, wherein an outer surface of the sidewall includes three dimensional features formed therein causing the outer surface to mimic a quilting pattern substantially comparable to ~~an~~ quilting pattern on a companion mattress;

and

b. a frame assembly comprising a plurality of ground support members supporting the foundation, depending downward from the lower edge of the at least one sidewall, holding the foundation above ground, and maintaining the top surface in a substantially horizontal orientation.

12. A mattress foundation assembly comprising,

a. an essentially rigid plastic top panel, and

b. at least one essentially rigid plastic side wall extending along at least a portion of a perimeter of the plastic top panel and depending downward from the plastic top panel, wherein an outer surface of the plastic side wall includes first three dimensional features sized and shaped to mimic a quilting pattern on a companion mattress.

13. The mattress foundation assembly of claim 12, wherein the plastic side wall includes a panel interfitted onto the outer surface of the plastic side wall, and an outer surface of the panel includes the first three dimensional features.

14. The mattress foundation assembly of claim 12, wherein the first three dimensional features are molded into the panel.

15. The mattress foundation assembly of claim 12, wherein the first three

dimensional features are molded into the plastic side wall.

16. The mattress foundation assembly of claim 12 including an aperture for a drawer.

17. The mattress foundation assembly of claim 16 including a drawer slidably interfitted within the aperture, the drawer having an outer side, the outer side of the drawer including second three dimensional features substantially the same as the first three dimensional features of the plastic side wall.

18. The mattress foundation assembly of claim 12, wherein the rigid top panel includes an outer surface and the outer surface includes second three dimensional features and an outer periphery portion substantially devoid of the second three dimensional architectural features.

19. The mattress foundation assembly of claim 12, wherein the outer periphery portion of the outer surface of the rigid top panel is substantially devoid of substantially any three dimensional features, including the first and second three dimensional features.

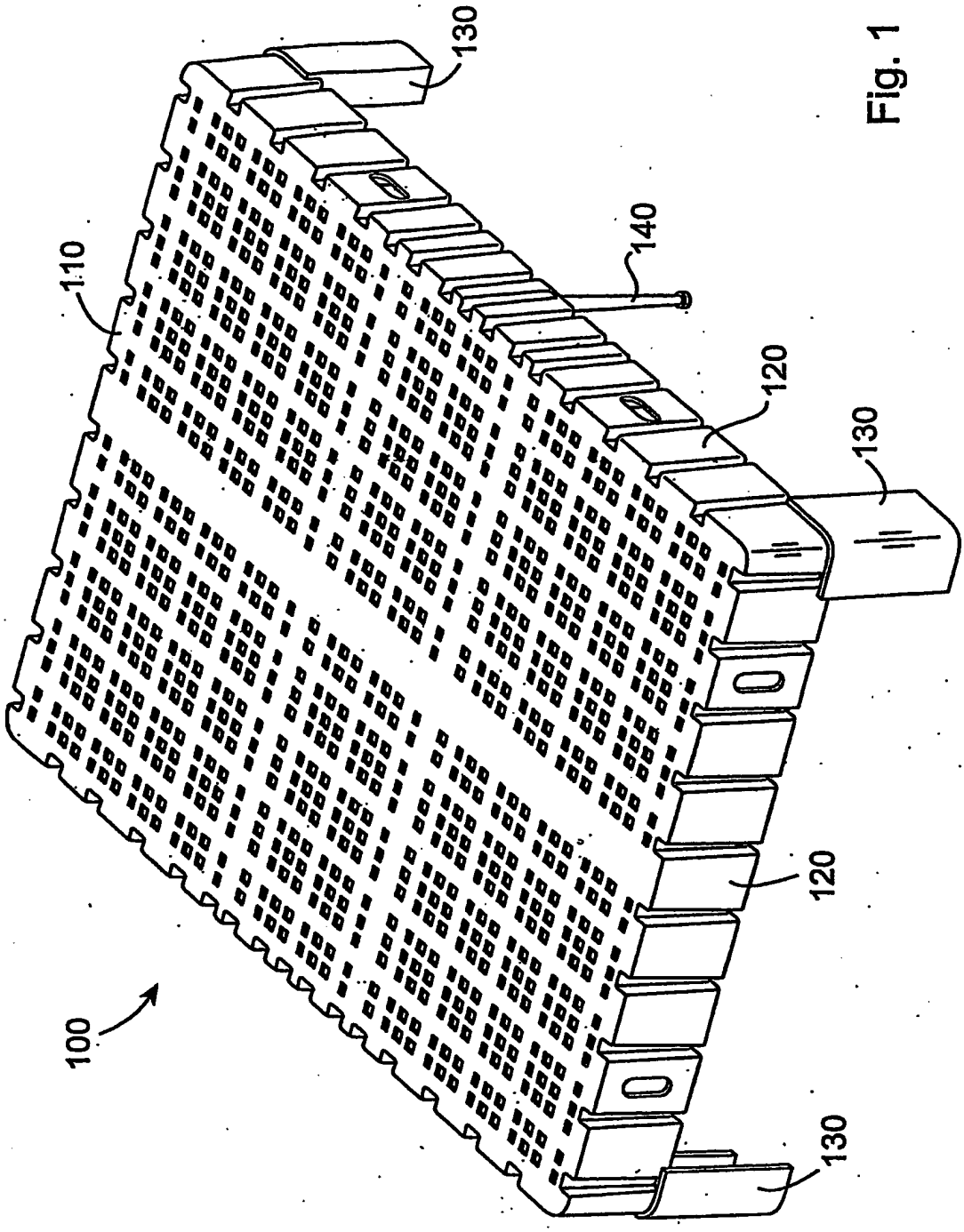


Fig. 1

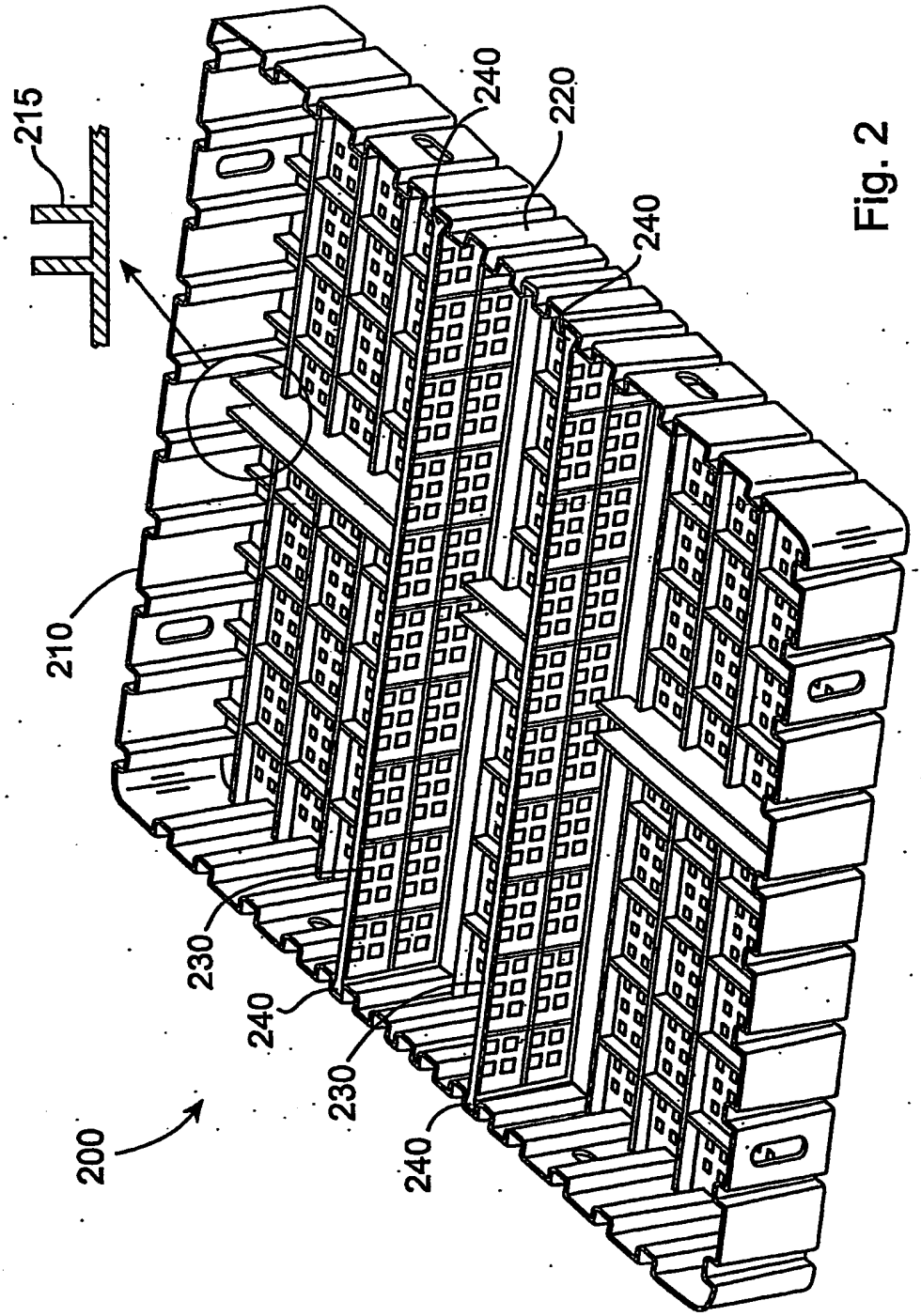


Fig. 2

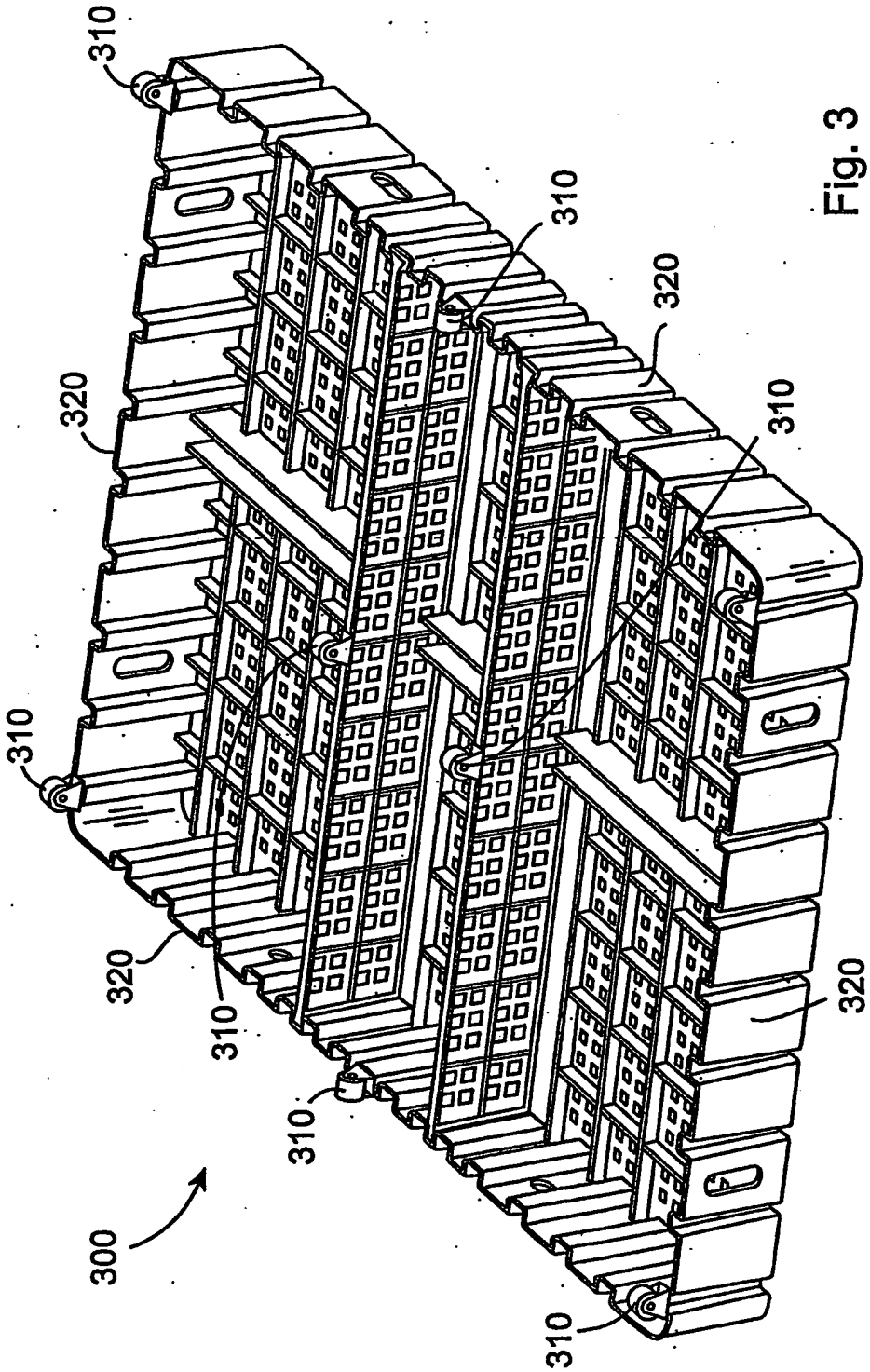
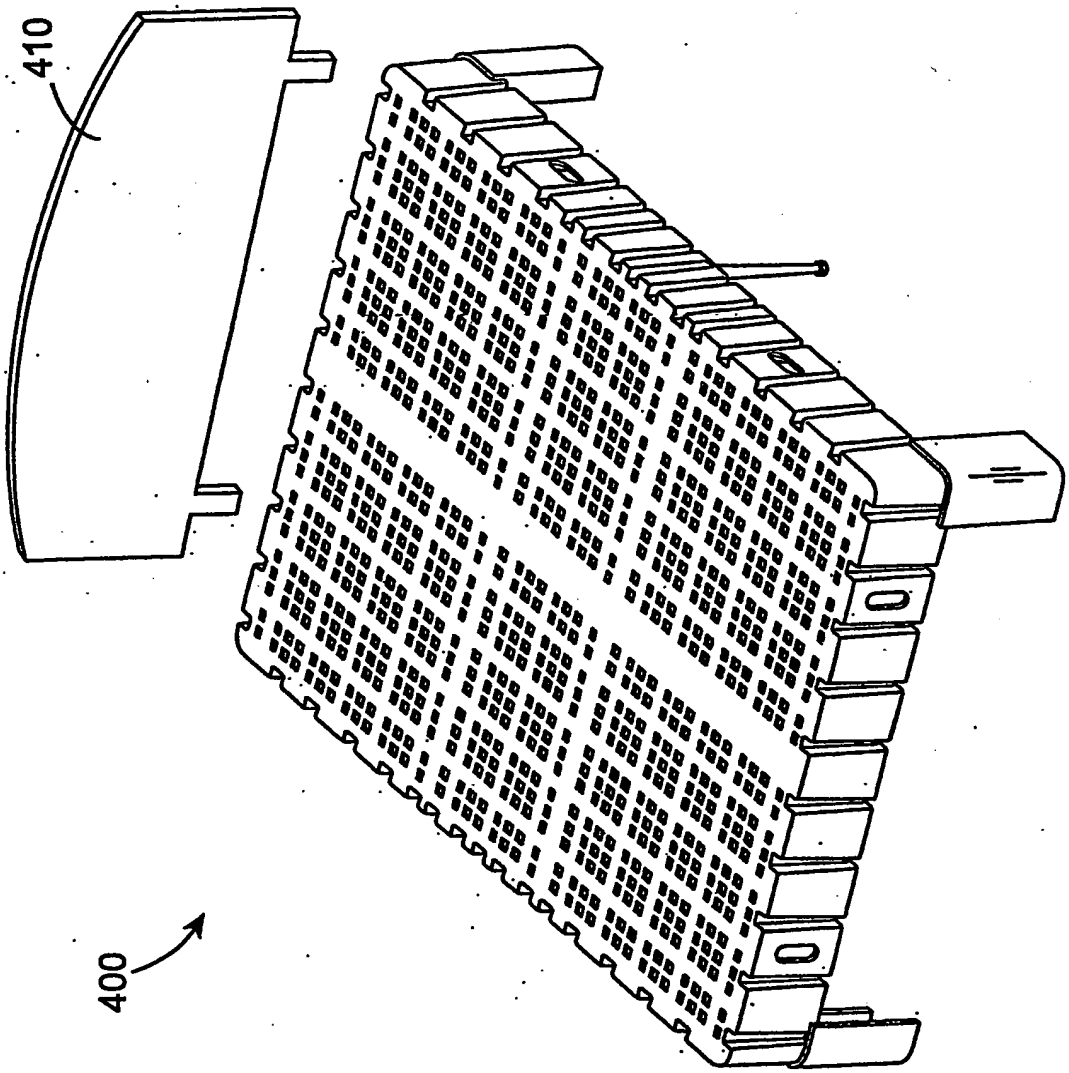


Fig. 3

Fig. 4



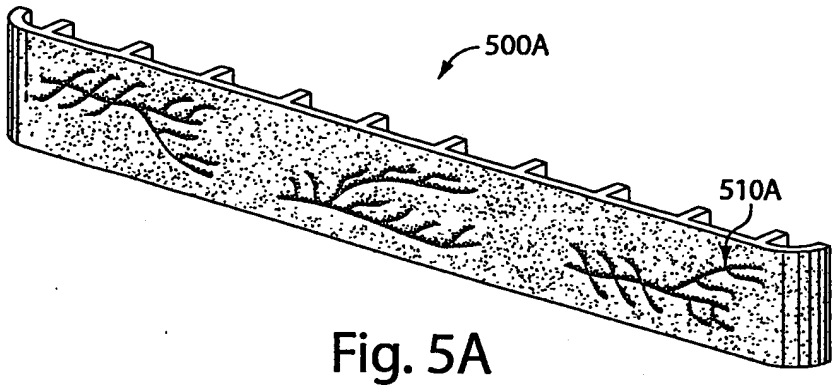


Fig. 5A

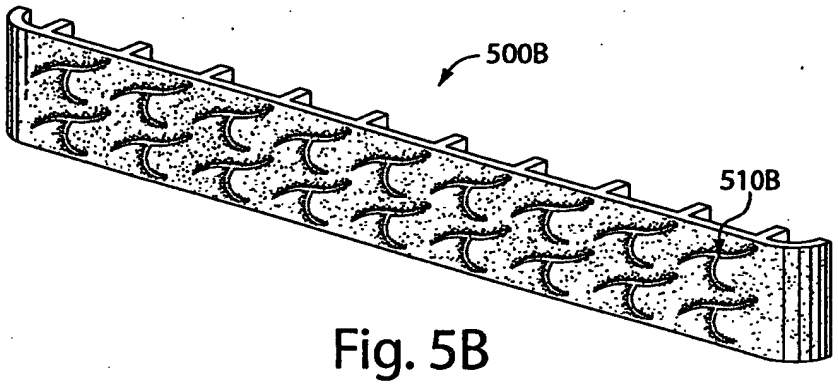


Fig. 5B

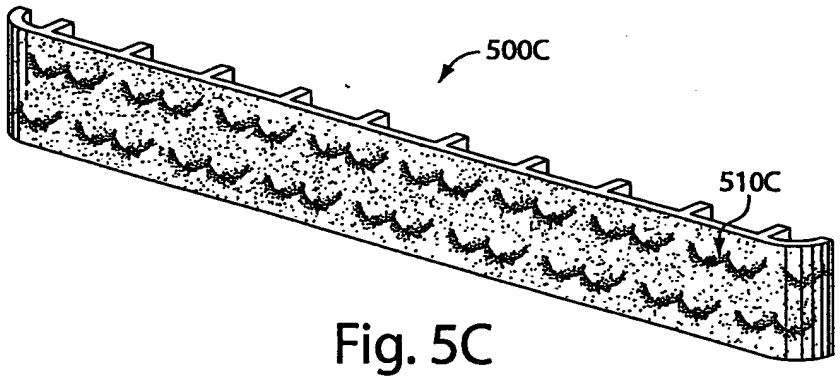


Fig. 5C

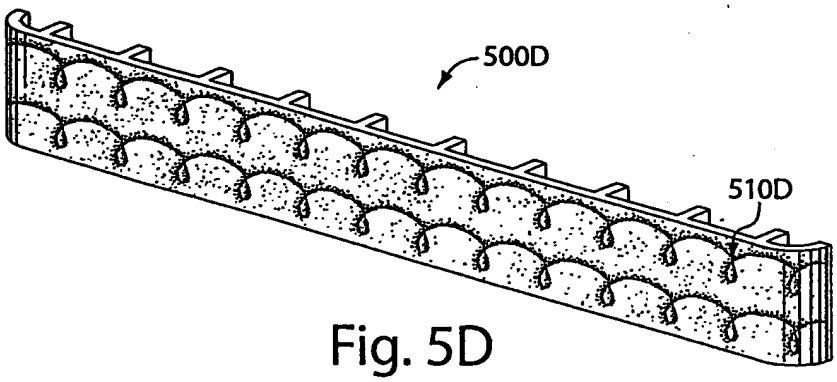


Fig. 5D

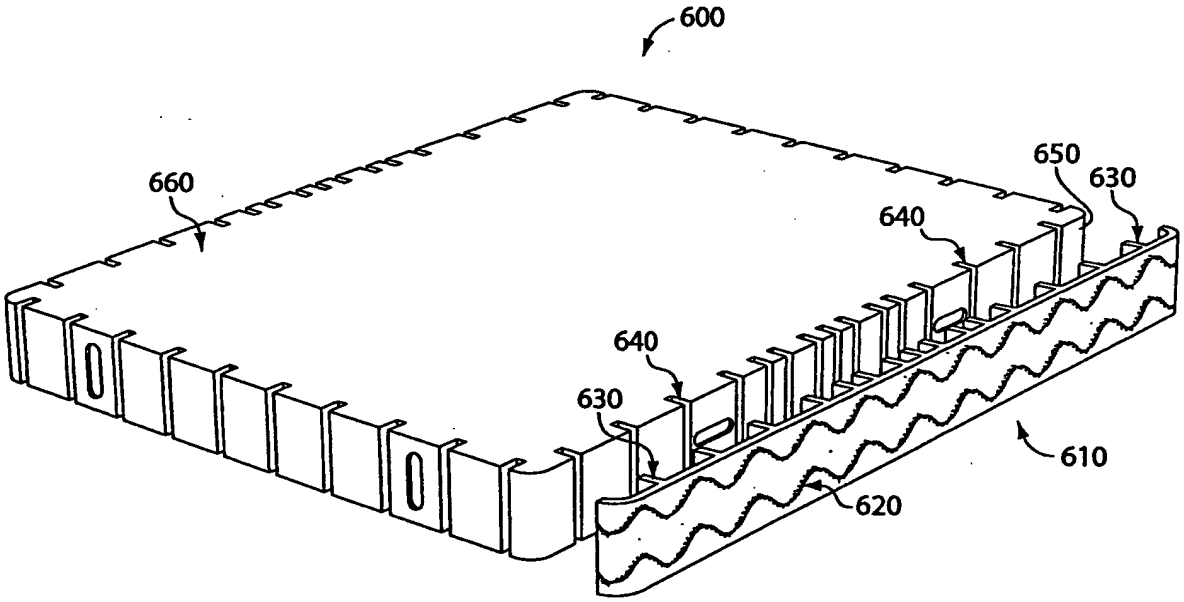


Fig. 6

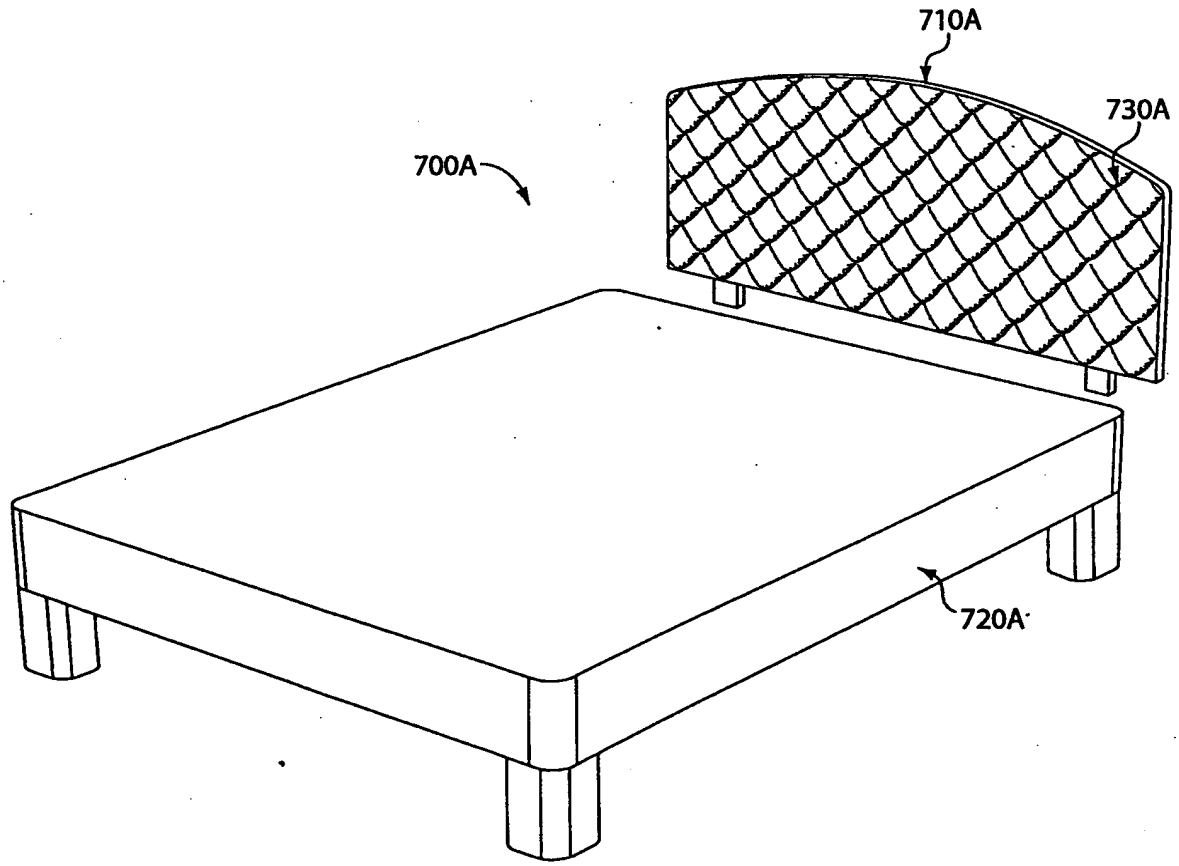


Fig. 7A

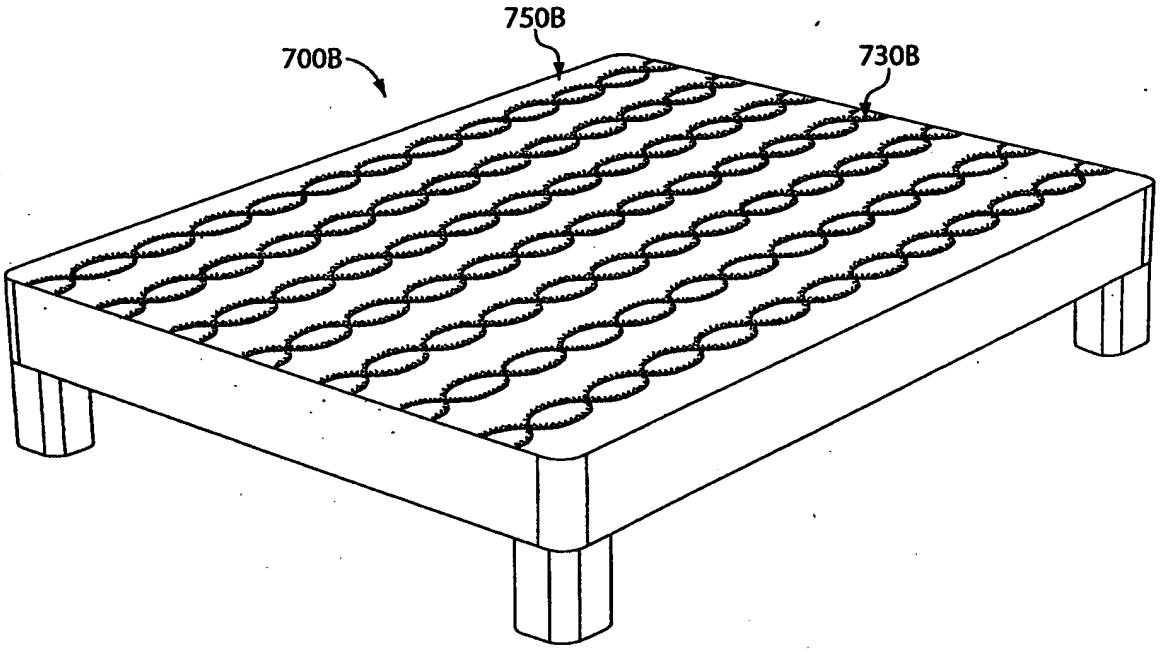


Fig. 7B

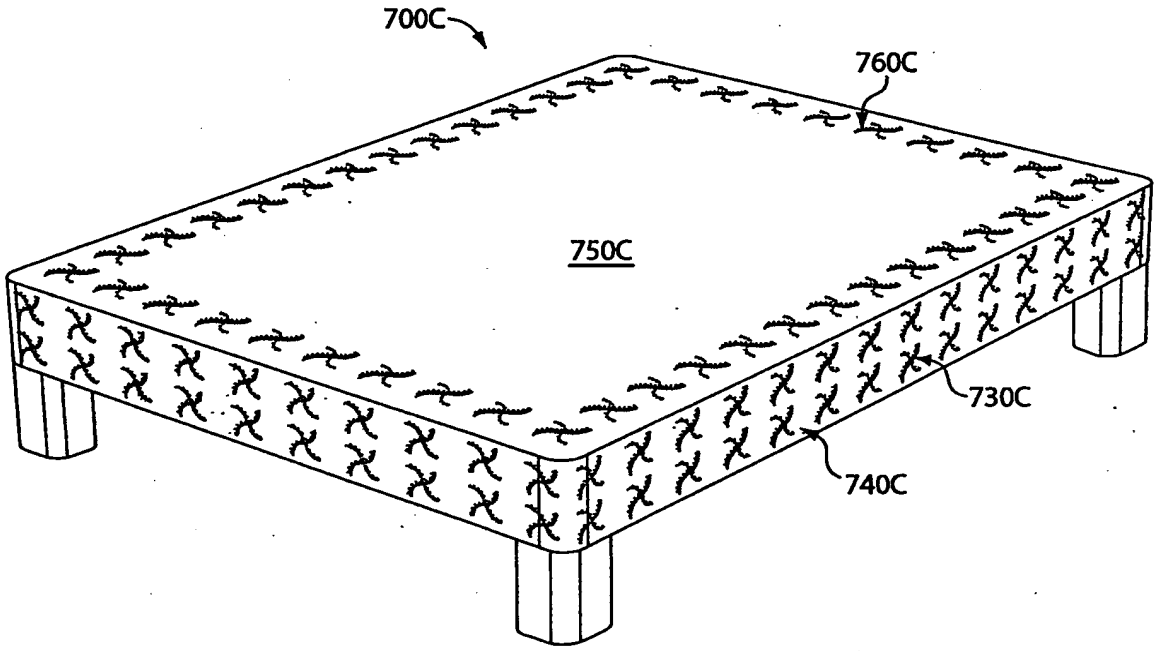


Fig. 7C

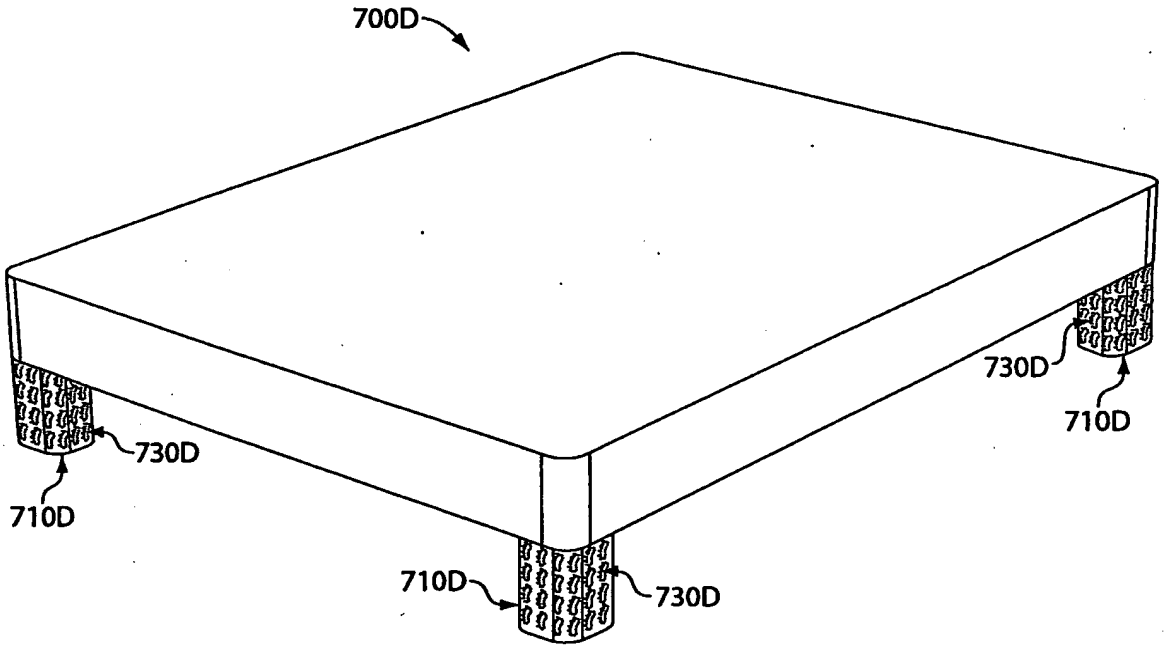


Fig. 7D

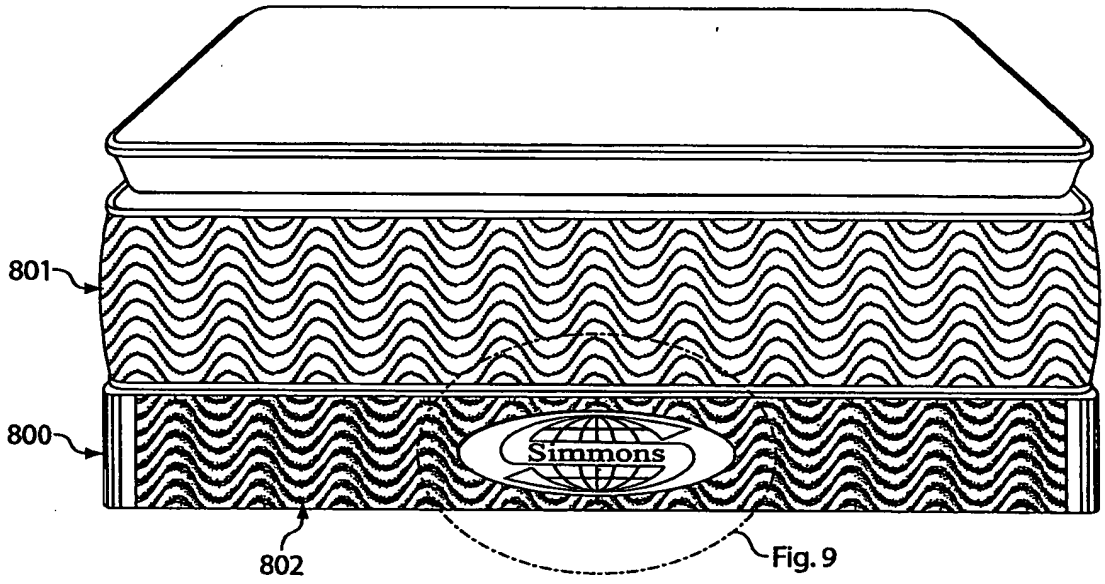


Fig. 8

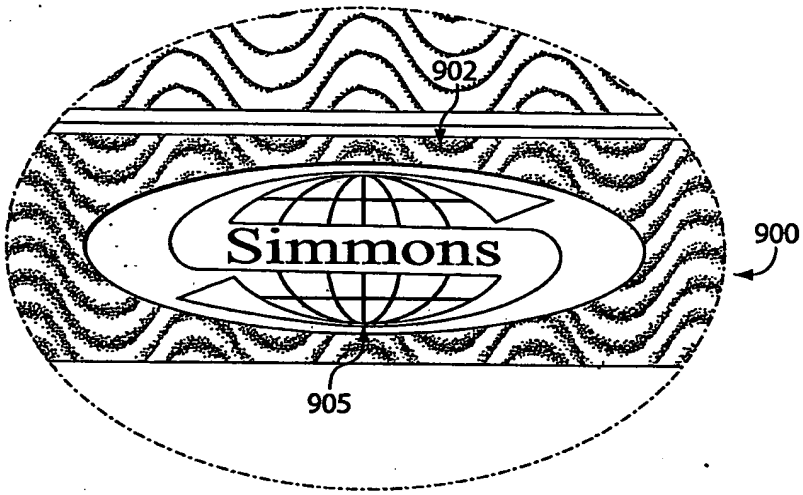


Fig. 9

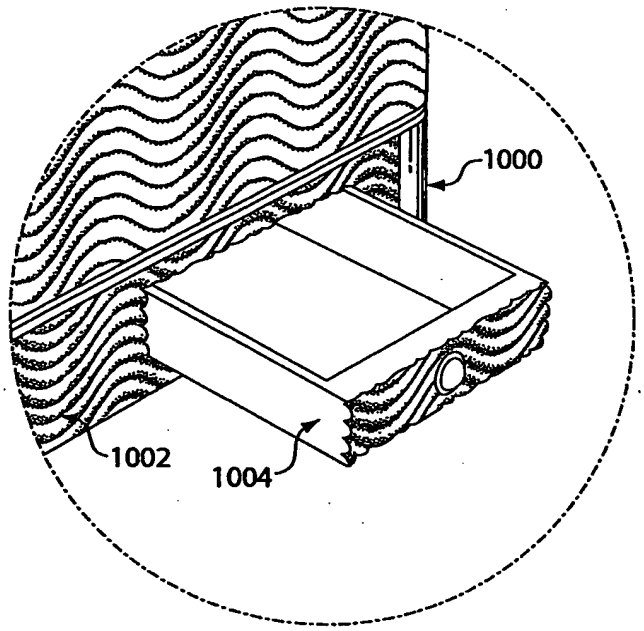


Fig. 10

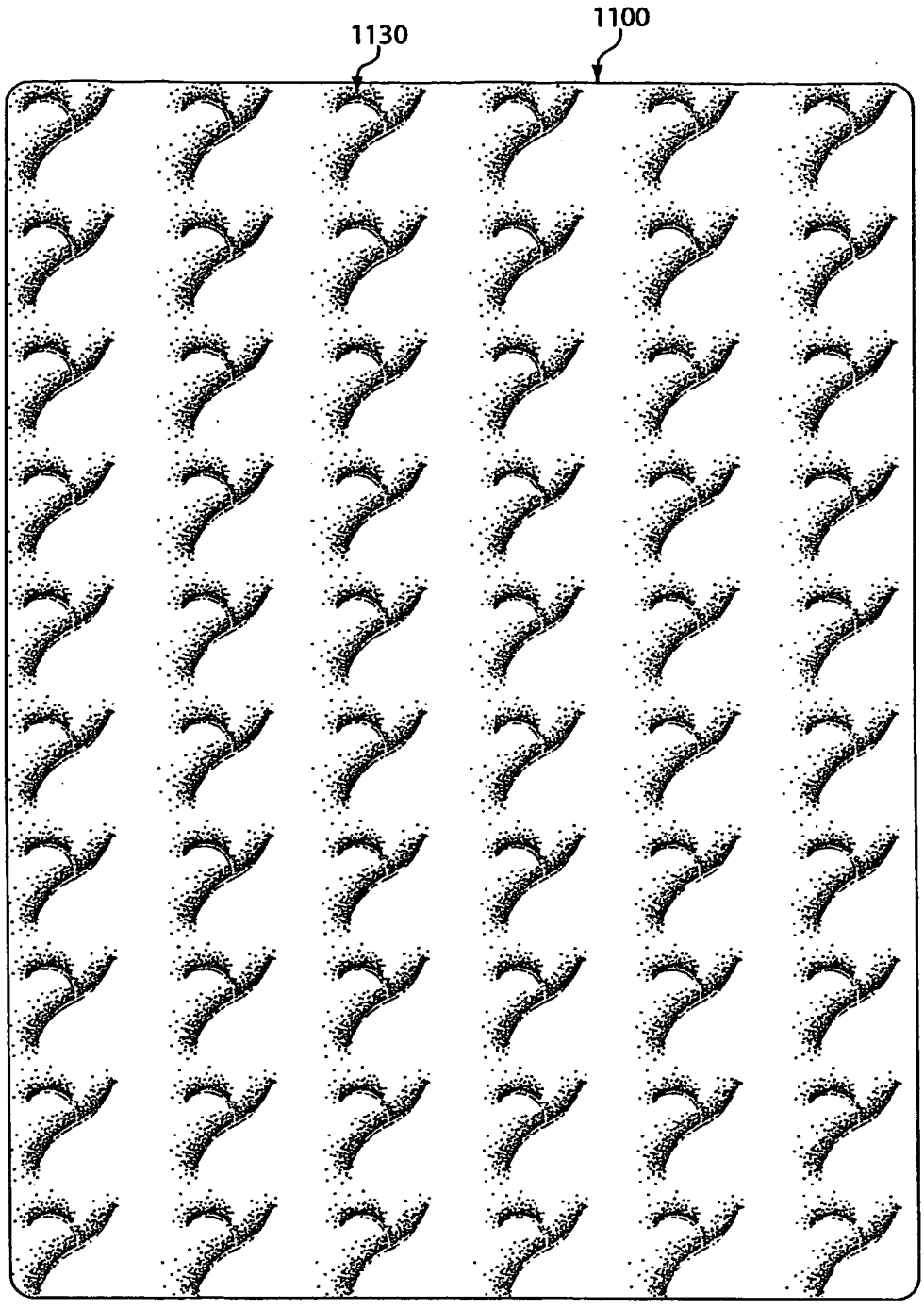


Fig. 11

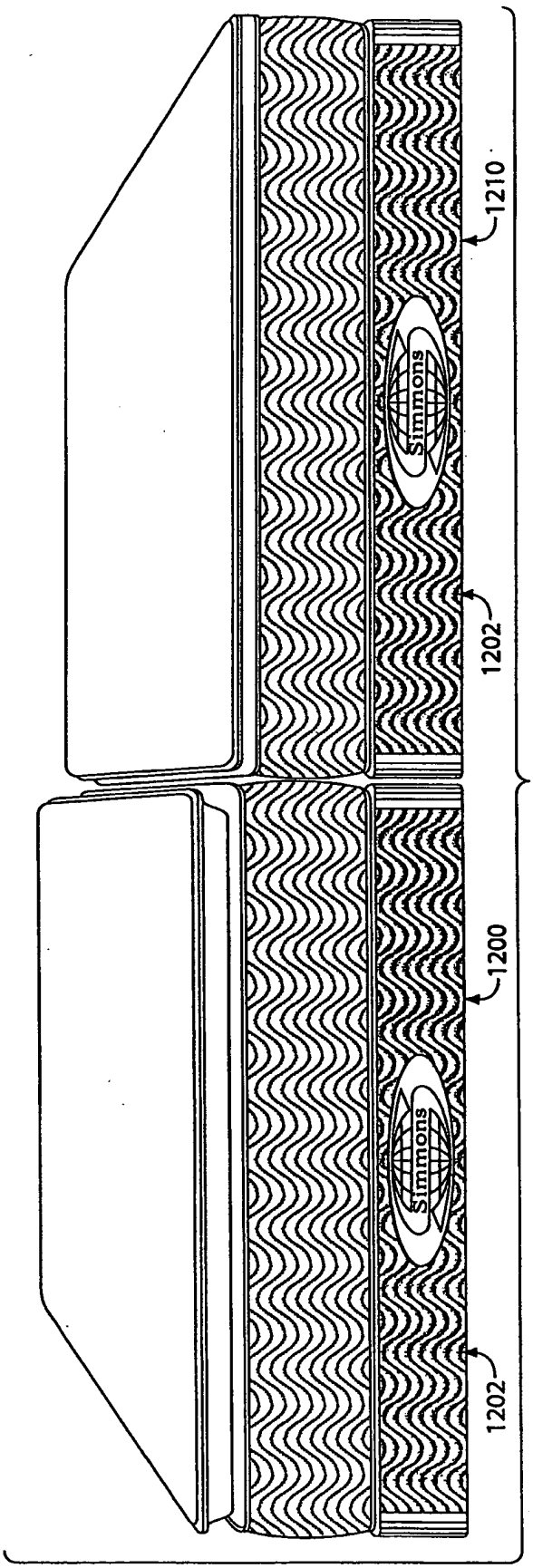


Fig. 12

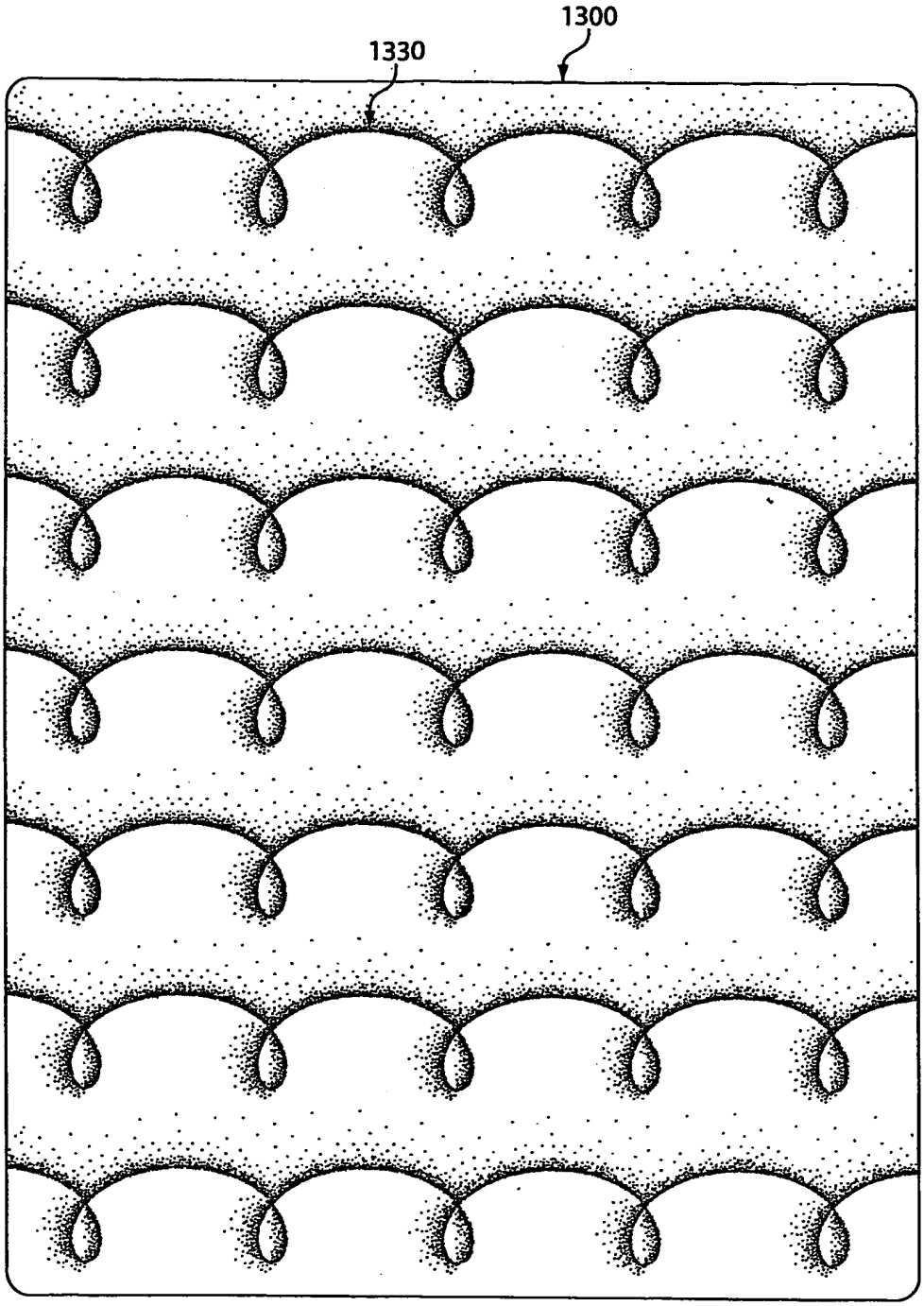


Fig. 13